

## **Trip Report, April 26 – May 15, 1998: Assessment of Chogoria Hospital, Kenya**

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## I. ACKNOWLEDGMENTS

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## II. EXECUTIVE SUMMARY

During the seventy years that PCEA Chogoria has been providing health services, donor funding from abroad has shrunk and competition has grown. This scenario, combined with the weak Kenyan economy, is motivating Chogoria to examine its financial situation closely and to make some important decisions that will enable it to continue to provide services for at least the next seventy years.

This report examines one of Chogoria's plans to respond to financial pressures and increased competition by transforming its thirty rural health clinics into financially independent entities. Eighteen of the thirty clinics suffered a loss in 1997. A decision has been made to make five of the worst performers financially independent in 1998. The first five clinics were chosen because they see few patients and are located in communities where other acceptable health care providers operate.

The process of becoming financially independent involves fundamental changes in the roles of the Community Health Department (CHD) of Chogoria and the local Area Health Committee. Area Health Committees will assume responsibility for financial management of the clinic in their communities which includes: employing staff and paying salaries, purchasing drugs and supplies, and maintaining clinic equipment and buildings. PCEA Chogoria will continue to perform medical supervision and will conduct quarterly training sessions for clinic nurses and helpers.

For the purpose of analysis, the clinics were separated into two categories: eighteen were considered "poor performers" because they ended 1997 in deficit and twelve were considered "performers" because they ended the year with a surplus. Performers see more patients than poor performers, but the proportion of preventive and curative visits is approximately the same. Performers generate more than twice the revenue as poor performers, but less than a quarter more costs. Performers receive an average of 44% more revenue per curative visit than poor performers. The reasons for this large difference should be investigated. The average cost of a preventive visit is higher than the revenue received for both poor performers and performers. This observation

causes concern that financially independent clinics may focus on more revenue enhancing curative visits at the expense of preventive visits.

Reasons for poor performance include both factors outside of Chogoria's control and factors that could be influenced by Chogoria interventions. The condition of the local economy and the behavior of competitors are factors outside of Chogoria's control. However, Chogoria can have an influence on: nurse and helper interpersonal skills, effectiveness of Area Health Committees, Strategic pricing, physical condition of clinics, service quality, clinic management, cost control, and revenue growth.

The following nine recommended activities were proposed to strengthen Chogoria's independent and dependent clinics:

- 1: Improve the financial control and inventory management system
- 2: Provide training to AHCs, Nurses, and Helpers
- 3: Strengthen Supervision
- 4: Introduce quality improvement programs
- 5: Pilot test options that alter incentives that will potentially alter behavior of clinic staff.
- 6: Change pricing for drugs and curative services
- 7: Establish preventative and curative targets based on a service planning model
- 8: Devise a plan to monitor progress and flag problems
- 9: Explore contracting arrangements for future insurance schemes
- 10: Transform poor performing clinics that are redundant. Of clinics that should survive, transform the strong performing clinics first

### **III. OBJECTIVES:**

The primary objective of this work was to evaluate the plans to transform clinics into financially independent units and to recommend interventions to improve the probability that clinics will continue to provide both preventive and curative services to their communities.

Specifically, objectives were:

1. To determine the feasibility of converting clinics into financially independent units by analyzing various options.
2. Compare various management arrangements that could exist between Chogoria Hospital and the financially independent clinics.
3. Recommend financial management tools (including CORE) for use for the clinics.

#### **IV. BACKGROUND:**

PCEA Chogoria Hospital asked for technical assistance from the APHIA Financing and Sustainability Project to evaluate the feasibility of transforming thirty rural outpatient clinics into independent entities. This request fits within the objectives of the Memorandum of Understanding between PCEA Chogoria and the APHIA AFS Project to work to increase managerial capacity and financial sustainability with the ultimate goal of making health care affordable, available and of high quality for the widest possible number of individuals in Chogoria and surrounding areas.

This area of technical assistance was identified as a priority during the Management Assessment of PCEA Chogoria that was conducted by the APHIA AFS Project. This report will contribute to forming the Technical Assistance Plan to be agreed on between Chogoria and the APHIS AFS Project.

Market conditions have changed in Chogoria's catchment area in recent years. More private clinics and pharmacies are developing that are providing competition for Chogoria's clinics. There is a need to re-evaluate the strategic importance of Chogoria's rural clinics and to develop interventions that will respond to changing market conditions so that the clinics can become financially sustainable and continue to meet the populations' needs. The goal of this consultancy is to better understand the characteristics of clinics that were currently performing well as compared to clinics that were running a deficit. Chogoria senior management was also interested in identifying additional options that could improve the performance of clinics as well as the interventions needed to operationalize recommended plans.

Previously, the AFS project and its precursor, the Kenya Health Care Financing Project (KHCFP) had reviewed the Chogoria Insurance scheme and had installed the HMCIS system to help manage the scheme. Work with Chogoria on Hospital departmental costing is continuing in parallel. The future size, configuration, and financial viability of Chogoria's network of clinics will have an impact on the range of delivery system models that can be offered through insurance schemes in the future.

#### **V. FINDINGS:**

PCEA Chogoria provides preventive and curative ambulatory and inpatient services to the approximately 450,000 people that live in their catchment area. The net work includes a hospital, a MCH clinic on the hospital grounds, thirty rural health clinics, groups of community volunteers, a nursing school and several income generation projects such as a restaurant, guest house, and petrol station. PCEA Chogoria is overseen by a Board that must approve major decisions. The senior management of the hospital, or Hospital Administrative Team (HAT) manages operations of all units in the network.

Chogoria's Community Health Department (CHD) oversees the operation of the 30 rural health clinics that provide both primary health care and basic curative services to the region surrounding Chogoria Hospital. The CHD is headed by a director and a deputy director who have the responsibility to oversee all CHD operations. Three

facilitators supervise the nurses that run the clinics and their helpers. Facilitators conduct ongoing training workshops for clinic personnel and work with Area Health Committees (AHCs) to ensure that clinics are meeting the needs of their communities.

Area Health Committees, comprised of community members, are responsible for constructing and maintaining the clinic's buildings and providing a house for the nurse. They work closely with the CHD, clinic staff, and networks of community volunteers to ensure that the needs of their population are being met.

Clinic staff is employed by PCEA Chogoria, though the helper is chosen by the Area Health Committee. Drugs and supplies are distributed from the PCEA Chogoria central store to clinics monthly.

In 1997, twelve of the thirty clinics saw enough patients and collected enough revenue to cover costs. The other eighteen clinics lost money. Some reasons for poor financial performance are outside of Chogoria's control such as community poverty and intensified competition from private and catholic clinics. However, other explanations for poor performance are within Chogoria's sphere of influence. These explanations include:

- interpersonal skills of clinic staff
- effectiveness of Area Health Committees
- strategic pricing
- quality of services
- cosmetic condition of clinics
- clinic management
- supervision
- financial controls
- revenue growth
- cost control

This report will evaluate Chogoria's proposals to make clinics financially independent and will suggest a range of interventions to improve clinic performance.

## **1. Community Health Department- Current Institutional Arrangements**

The Community Health Department is one department in the PCEA Chogoria Hospital network that is responsible for health education, primary health care and basic outpatient curative care. Much of the health education activities as well as the salaries of supervisory staff are donor funded. Activities include:

- family planning
- maternal and child health
- immunizations
- folk media
- training of community volunteers (TBA, CHW, CBD)
- training of clinic nurses and helpers
- training and liaison with AHCs
- supervision of CHD programs and clinics

Supervisory staff of the CHD include a Director and Deputy Director, three facilitators, and field supervisors to oversee activities of volunteers in areas with no clinic. Chogoria's catchment area is separated into two zones: one zone, Tharaka, has no clinics but has a network of community volunteers and the other zone with 30 clinics as well as a networks of community volunteers. Each region has a group of volunteers that includes community health workers (CHWs), community-based distributors (CBDs), and traditional birth attendants (TBAs). In addition, there are 40 troupes that perform folk media that communicate health messages to the population in Chogoria's catchment area.

*Relationships between the CBD and volunteers and the CBD and clinics are operationally separate.* The CBD plans to continue to oversee the volunteer programs with the same institutional arrangements as in the past and hopes to receive continued donor funding for volunteer activities (see discussion of the CHD 10 year plan). Since the focus of this work is on the plan to transform the clinics into financially independent entities, the focus of analysis will be on the institutional arrangements between the CBD, the AHC, and the clinics.

#### **a) Clinic staff and employee agreements**

Each clinic employs one nurse and at least one helper. Clinics that see over 9,000 patients per year are entitled to hire a second helper. Facilitators are supposed to verify that nurses and helpers employed by the clinic are complying with the terms of the employment agreement. Clinics must be open between 8am and 5pm Monday through Friday. The nurse and helper must alternate times that they take breaks to ensure that the clinic is continuously open throughout the day. The nurse is responsible for collecting funds for preventive and curative visits; maintaining records, and delivering collected funds and vouchers to Chogoria Hospital each month. Clinic staff has, in theory, the responsibility to account for the inventory of drugs and are required by the employment agreement to pay the hospital for any drugs that are not accounted for. It was reported that, in practice, a nurse has had to pay for missing drugs only once.

#### **b) Clinic supervision**

Facilitators conduct supervisory visits to clinics at least once every three months. These visits are supposed to include examination of the clinic receipt and dispensing books and verification that records of revenue received for drugs sold equal actual revenue received plus inventory on the shelves valued at retail prices.

#### **c) Area Health Committees**

Area Health Committees are comprised of approximately twelve members (some AHCs have as many as twenty members) that have the responsibility to develop, run, and maintain clinic buildings and to ensure that community health needs are being met. In addition to community representatives, the clinic nurse and a representative TBA, CHW, and CBD participate in the committee. AHCs meet a minimum of once per month to discuss community priorities. Leaders also receive training from PCEA Chogoria. CHD facilitators agree that a strong AHC is an important determinant of

the success and financial viability of a clinic (see Table 11). In reality, it is impossible for the facilitators to verify that clinics are open the required hours and that clinic staff comply with all the terms of their employment agreements. It does appear, however, that the intensity of supervision by facilitators could be increased. Area Health Committees perform an extremely important oversight role to make sure that clinics are serving their communities as well as possible. A strong AHC complements the supervision of the CHD. Unfortunately, not all AHCs are strong and not all perform this needed oversight function.

## **2. Chogoria proposal to make clinics financially independent**

Chogoria's HAT, with support of the Board, has decided to move forward with a plan to convert the 30 rural clinics into financially independent entities. Clinics that are identified as both losing money and redundant (operating in regions where the population has access to other service providers of adequate quality) have been chosen as the first to be transformed. Five clinics are scheduled to be transformed in 1998, with the first clinic starting in June.

The transformation shifts much responsibility away from PCEA Chogoria and onto Area Health Committees. Clinic staff will no longer be employed by PCEA Chogoria and AHCs will be responsible for collecting enough revenue to cover salaries, drugs and supplies, and operating costs.

Chogoria's proposal to transform their 30 community based clinics into financially independent entities must be seen within the context of the PCEA Chogoria Hospital Ten Year Plan and the PCEA Chogoria Hospital Community Health Department Ten Year Plan.

### **a) Ten Year Hospital Plan- relevance to clinics**

Central to the mission of Chogoria Hospital, as stated in the Ten-Year Plan, is to continue to emphasize primary health care. In contrast, CHD management clearly expressed fears that financially independent clinics will provide fewer primary health care services to communities.

“ Primary health care, including community based health care, education, immunization, and simple curative care will be affordable and accessible to all of our catchment area”<sup>1</sup>

Also of relevance to the clinics is the planned change of the distribution of revenue sources received by the Hospital (see Table 1). Total income from health insurance is hoped to increase from 14% to 30%<sup>2</sup>. If future health insurance schemes will include outpatient and inpatient services, the increase in importance of insurance income will have an impact on the financial sustainability of clinics as well as the hospital. Currently, Chogoria has the possibility of offering an insurance product that gives access to a system that provides comprehensive health care services delivered by Chogoria's own staff. The decision to make clinics financially independent implies

<sup>1</sup> PCEA Chogoria Hospital 10 Year Plan, p.1.

<sup>2</sup> 1.5% of total revenue currently comes from the Chogoria Hospital Insurance Scheme (CHIS) and 12.5% comes from the NHIF.

that a staff model integrated delivery system will no longer be feasible. However, contractual arrangements between the insurance entity, the hospital, and the clinics will still be possible.

**Table 1: Sources of Income**

	<b>1996/7</b>	<b>Ideal</b>
<b>Patient fees</b>	57.4%	30%
<b>Health Insurance</b>	14%	30%
<b>Donor projects</b>	15.4%	5%
<b>Nursing Students</b>	2.5%	8%
<b>Donations</b>	10.3%	5%
<b>Income Generation</b>	0	2%
<b>Endowment</b>	.4%	20%

Source: PCEA Chogoria Hospital Ten Year Plan, p. 5.

#### **b) Ten Year Community Health Department Plan**

The overall goal of the CHD is to “cover the whole of the catchment area of Chogoria Hospital with Integrated Health Care”.<sup>3</sup> The following objectives were outlined to achieve this goal:

- *Develop Area Health Committees (AHCs)* in each sub-location in Tharaka and every second sub-location in the upper zone of Nithi and S. Meru by 2008. This requires establishing 25 additional AHCs in the Upper Zone and 12 additional AHCs in Tharaka. The Plan indicates that local leaders will have to be trained in the importance of primary health care. Additional community volunteers will need to be trained (community health workers, community based distributors, traditional birth attendants). An additional facilitator will be needed and a trainer that can train other trainers.

No explanation of the criteria used to establish these targets is included in the plan.

- *Each clinic must become financially independent of the hospital. Clinics with attendance that is too low to sustain a clinic will be converted to Bamako style community pharmacies.* The MCH/FP Clinic that is located at the hospital will remain under hospital control. The plan states that 15 clinics will be converted to community pharmacies and 20 additional community pharmacies will be built by 2008. This leaves 15 independent clinics in 2008.

As stated in the Plan, 3 clinics per year will become independent over five years until 15 independent clinics are established. In addition, 15 clinics will be converted to community pharmacies in three years (5 per year). Sixteen additional community pharmacies will be established over 8 years

<sup>3</sup> PCEA Chogoria Hospital Community Health Department 10 Year Plan, p.1.

at the rate of 2 per year. The plan indicates that training will be offered to facilitate the transformations.

The criteria used to decide that 15 clinics will be converted to pharmacies are not explained in the plan, nor is a needs assessment that justifies why additional pharmacies are needed.

The methodology behind these plans should be evaluated to ensure that the changes in staffing and institutions deliver needed services in the most cost effective manner. Part of the strategic planning support to be received by Chogoria management should include a review of the criteria used to determine the CHD Ten-year plan goals.

The Plan outlines an implementation strategy that includes residential and field training and continued supervisory visits. Community clinics and pharmacies will receive drugs and supplies monthly and a mobile team will carry out vaccinations at selected community pharmacies bi-monthly. AIDS Education will continue and a homecare program will be established. The 40 troupes that currently perform folk media will be maintained and will perform in areas where troupes are not present, rather than train other troupes. Liaison with other agencies such as a SIDA water project will continue as well as a strong emphasis on Maternal and Child Health and family planning.

The Plan also envisions a reduction in the Community Health Department Staff as clinics transform and become financially independent.

Currently, the CHD receives funding from patient fees, USAID, EZE (Germany), ICA (Canada), and GTZ (Germany). *Donor funding does not finance direct clinic activities.* Donors fund some supervisory costs of the CBD and training activities and associated costs for the community volunteer programs. Donor funding in 1997 can be seen in Table 2. The Ten-Year Plan indicates that even if these funding levels continue there will be a funding shortfall of 4 million shillings per year. As stated in the plan, Chogoria Hospital is hoping that an endowment from USAID will cover this shortfall.

**Table 2: Donor Funding for Community Health Department  
(Kenya Shillings)**

	USAID 1997	EZE 1997	GTZ 1997	ICA *1998
Salaries and Benefits	3,082,695	1,959,750		2,071,680
Technical Assistance	995,000			
Training/ Education	1,448,700	1,218,730	1,284,000	
Supplies/ Equipment	1,183,800	951,660	200,000	
Vehicle Running Costs and Maintenance	1,064,805	595,000	200,000	
Total	7,775,000	4,725,140	1,724,000	2,071,680

Source: Kiara Bundi, Community Health Department

\* ICA funding is for salaries for field supervisors and facilitators in 1998

### **c) Proposed Agreement Between Hospital and Clinics**

Presently, Area Health Committees are responsible for constructing and maintaining the clinic buildings, nurse houses, and grounds. PCEA Chogoria returns one shilling for every drug prescribed (which is equal to every curative visit) to the AHC to help fund clinic maintenance. In addition, the AHC chooses the clinic helper, though salaries for clinic staff are paid by PCEA Chogoria. All other responsibilities are maintained by PCEA Chogoria (see Table 3).

The proposed shift toward financial independence transfers much more responsibility to the AHC. The critical new responsibility will be in the area of financial management. In the future, AHCs will need to ensure that enough revenue is collected to pay nurse and helper salaries, maintain the building and equipment, fund required quarterly training, and to purchase drugs and supplies. AHCs will be required to continue to employ the clinic nurse and helper for six months after the transfer. After the six-month period is over, AHCs can employ the staff of their choice at the employment terms and wages of their choice.

In order to maintain a formal relationship with PCEA Chogoria, independent clinics have a number of obligations that need to be met to retain their Chogoria license. They must agree to continued medical supervision from Chogoria and allow regular inspections. The AHC must also agree to fund travel and food expenses for the nurse and helper to attend training sessions at Chogoria Hospital four times per year. Equipment and the clinic building must be adequately maintained. Failure to meet any of the above conditions may cause the Chogoria license to be revoked.

At the time of transfer of financial responsibility to the AHC, PCEA Chogoria will provide a one-month supply of medicine to the clinic. This will provide the foundation for the independent clinic to maintain a functioning revolving drug fund. After that, drugs and supplies will be ordered from the Chogoria Pharmacy and deliveries will occur monthly. The AHC will pay Chogoria Pharmacy for drug costs plus a markup for handling and delivery and payment of Church Health Association of Kenya (CHAK) fees to maintain access to MEDS, a church drug purchasing alliance.

**Table 3: Comparison of Current and Proposed Relationships Between Clinics and PCEA Chogoria**

	Current	Proposed
Responsibility for financial management	PCEA Chogoria	Area Health Committee
Purchase of medicines and supplies	PCEA Chogoria	Area Health Committee
Employment of staff	PCEA Chogoria	Area Health Committee
Medical supervision	PCEA Chogoria	PCEA Chogoria
Training	PCEA Chogoria	PCEA Chogoria
Food and travel expenses for training	PCEA Chogoria	Area Health Committee
Equipment maintenance	PCEA Chogoria	Area Health Committee
Building maintenance	AHC, but PCEA Chogoria gives one shilling per drug prescription to AHC to help fund maintenance.	AHC, payment of the shilling towards maintenance costs will stop.

### **3. Payment for Clinic Services and Clinic Financial and Inventory Record Keeping and Controls:**

#### **a) Prices**

Consumers are required to pay 20 shillings for each preventive visit and a retail price, established by PCEA Chogoria, for each curative visit that is determined by the drugs that are prescribed. Retail prices are designed so that the markup on relatively low priced drugs is higher than the markup on higher priced drugs. This markup is designed to cover the fixed costs of the clinic as well as medical supplies that are needed to treat the patient (an example is a syringe for an injection). Implicit in this pricing structure is the assumption that community members buying lower priced drugs will cross subsidize those who need higher priced drugs. In reality, consumers are reported to often choose to fill prescriptions for drugs where prices are lowest.

When asked if charges are ever waived if a person is too poor to pay, clinic nurses indicated that patients always have to pay and must go elsewhere for services (such as government clinics) if they cannot afford clinic charges.

### **b) Arrangements with Schools**

Some clinics establish arrangements with boarding schools located nearby to provide health care services for their enrolled students. The fees paid by parents to the school include coverage for health. The usual arrangement is that students come to the clinic with a voucher from the school that promises payment. At the end of each month, the clinic calculates the total owed and submits that total with the receipt books and collected cash to the hospital accountants. In some cases, the hospital then bills the school. In other cases, the school writes a check to Chogoria and delivers it to the nurse who then remits it with the collected cash.

From Chogoria's point of view, these arrangements are similar to indemnity insurance. The clinic is simply billing fees for services delivered and no insurance risk is assumed. It might be possible, however, to charge schools an annual premium per student to cover a range of health services. This type of scheme would have the advantage of ensuring income to Chogoria and may reduce administrative costs and time lags associated with collections. Creating an insurance product that would be attractive to both schools and Chogoria is a priority for the Hospital Administrative Team. One insurance arrangement with a school has been proposed and is currently being considered by the school management.

### **b) Coffee Vouchers**

Clinics located in regions where coffee is grown are often paid by vouchers issued by the coffee societies. The prevalence of vouchers is dependent on the time of the year and the world price for coffee. Workers sell their unprocessed coffee beans to coffee societies twice per year (coffee is picked twice per year). They are initially issued a credit per kilo that represents only a portion of the ultimate value of their beans. The coffee factory then processes the coffee and arranges to sell it on the world market. After the price received is known, the coffee worker receives an adjustment in payment. Because coffee is picked twice per year, coffee societies stagger payment over a number of months to smooth out income received by coffee workers. Vouchers are issued by the coffee societies to pay for health services. It is important to note that vouchers are not a form of credit, but a claim on future income that the worker has earned and is committed to receive in the future. Clinics paid by coffee vouchers submit the collected vouchers with cash and the Hospital bills the coffee societies.

### **d) The challenge of cyclical revenue**

Both the coffee crop cycle and the school cycle contribute to fluctuations in clinic income. The current form of payment from schools only provides revenue when schools are in session, creating a cycle in clinic income around the school schedule. Income from coffee vouchers is highly cyclical and depends on the time of year as well as the world price for coffee. The hospital and clinics would be well served by charting these cycles and developing a strategic plan to cover costs during times of low revenue from cyclical sources. An additional problem is that there is often a long lag between the time the hospital submits a bill to schools and coffee societies and when the hospital receives payment. This lag time needs to be tracked and a plan developed that provides incentives for early payment.

In addition, fluctuations in the local economy directly impact both clinic and hospital cash income. While economic downturns are outside the scope of influence of Chogoria, it is important for the hospital and clinics to develop a strategic plan to cope with changing economic conditions.

#### **e) Record keeping for drugs**

Clinics maintain inventory lists for each drug and supply. Each time a new delivery is received, an addition is made to the inventory list for that drug. Each time a drug is dispensed, a subtraction is made to the inventory list. When facilitators visit clinics for supervisory visits, part of their responsibility is to verify that the total on the shelf is equal to the total indicated on the drug inventory sheet.

#### **f) Record keeping for income**

Each time a consumer pays for services, a receipt is issued by the nurse. Each month, nurses deliver the monthly receipt book(s) and collected cash and vouchers to Chogoria Hospital where hospital accountants verify that the total collected equals the amount recorded in the receipt book.

There was some disagreement between hospital administration and CBD staff as to the appropriate number of receipt books that should be simultaneously maintained. Some argued that only one receipt book should be maintained in a month. That book should record cash received for both preventive and curative visits as well as vouchers received from coffee growers and school children. At the end of the month, the clinic should deliver the receipt book to the hospital for reconciliation and should use an alternate receipt book for the following month. At the end of the following month, the alternate receipt book is submitted to the hospital for reconciliation and the initial receipt book is returned for use the subsequent month.

Some argued that it was standard protocol to maintain a separate receipt book for vouchers or a separate receipt book for preventive and curative care. A problem arose when it appeared that one of the clinics visited had only submitted one of the two maintained receipt books to the hospital and only the cash collected from that one receipt book to the hospital. Investigation of clinic records quickly revealed that additional cash was collected that had not been remitted to the hospital. This discovery also called into question the thoroughness of the supervisory process.

### **4. Descriptive Statistics that Compare Performers to Poor Performers**

The thirty clinics were separated into two groups based on whether they experienced a deficit or a surplus in 1997. Eighteen clinics lost money and are referred to as “poor performers”. The twelve clinics that at least covered costs are referred to as “performers”. What follows are brief summaries of descriptive statistics that compare performers to poor performers. More detailed discussion and tables are also included.

- Performers see more patients than poor performers

Average number is 7266 vs. 4354

- Performers provide approximately the same proportion of preventive and curative visits as poor performers.

	preventive	curative
Performers	33.75%	67.39%
Poor Performers	32.07%	67.74%

- Performers generate more than twice the revenue as poor performers

Average total revenue is 351,934 vs. 160,749

- Performers only generate 23% more total costs than poor performers. Additional costs are due to additional drugs and medical supplies used to treat additional patients.

Average total cost is 275,637 vs. 223,894

- The average surplus earned by performers is 76,298 while the average poor performer lost 63,145

	High	Low
Performers	210,192	5,605
Poor Performers	(145)	(119,398)

- Performers receive a significantly higher proportion of revenue from vouchers.

Average percentage of revenue from vouchers is 27% vs. 8%.

- Performers receive an average of 37% more revenue per visit than poor performers

Average revenue per visit for performers is 49.98 vs. 36.56

- Performers receive an average of 44% more revenue per curative visit than poor performers.

Average revenue per curative visit is 63.94 vs. 44.41

- The average cost of a preventive visit is higher than per visit revenue for both performers and poor performers.

	Cost per preventive visit	Revenue per preventive visit	Loss per preventive visit
Performers	25.36	20	5.36
Poor Performers	41.01	20	21.36

- Poor performers are losing on curative visits, while performers are earning.

	Cost per curative visit	Revenue per curative visit	Gain (Loss) per curative visit
Performers	44.19	63.94	19.75
Poor Performers	56.86	44.41	(12.45)

- Poorly performing clinics face slightly more private clinic competitors, but slightly less competition from Government of Kenya clinics. These differences are not statistically significant.
- Poorly performing clinics are situated in communities with smaller populations, on average, than well performing clinics.
- CHD Facilitators perceive the nurses that run well performing clinics to be stronger than nurses in poorly performing clinics. These differences are statistically significant.
- AHC are perceived by CHD facilitators to be slightly stronger in communities with well performing clinics, though the statistical significance of these differences is weak.

#### **a) Total revenue and total cost of clinics**

In 1997, 18 of the 30 rural clinics ended the year in deficit. The worst performer lost 119,398 shillings and the best performer finished the year with a surplus of 210,192 shillings. The financial performance of Chogoria's clinics caused a net financial drain on resources of 221,031 shillings (the total of the deficits of poor performing clinics outweighed the total surpluses of the performers). Table 4 presents the distribution of total revenues and total costs for all the off site clinics.

#### **b) Sources of income**

The majority of income received by clinics comes as cash payments from individuals. The poor performers received, on average, 89% of their 1997 income from cash and the performers received, on average, 69% of income from cash. On average, performers received 27% of their income from coffee society vouchers as compared to only 8% among poor performers. The Apollo insurance was a small source of income for both groups: 3% of income for poor performers and 4% of income for performers. Table 5 presents sources of income by category.

### c) Expenditures

Since Area Health Committees are responsible for building and maintaining clinic buildings and nurse houses, these costs are not included in Chogoria's data base that tracks expenditures. However, building and maintenance costs will become relevant for clinics that become financially independent. A financial accounting system will need to be established to help AHCs track and monitor all clinic costs.

In 1997, clinic costs as tracked by Chogoria included: staff and helper salaries, recurrent training costs, and the costs of drugs and medical supplies. All other costs were assumed by AHCs. This implies that the only fixed costs of operating a clinic from Chogoria's perspective in 1997 were salaries and training costs. These costs would have to be met even if no patients received services from clinics. Expenditures on drugs and medical supplies are considered variable costs because expenditures depend on the volume of patients served. In addition, vaccines and family planning supplies are given to Chogoria clinics free of charge from the Government of Kenya and are, therefore, not included in the drugs or supplies figures.

In 1997, fixed costs averaged 73% of total costs for the poor performers and 62% of total costs for the performers. Variable costs, or drugs and supplies, accounted for 38% of total costs among the performers and 27% for poor performers. These proportions are clearly determined by the volume of preventive and curative visits seen by clinics. Table 6 displays these breakdowns.

### c) Service mix

The average poor performer saw 2,912 fewer patients in 1997 than the average performer. This difference is partially driven by five performers that served a relatively high number of patients. While serving an adequate volume of patients is clearly one element of success, it is important to note that there are performers that served fewer patients than some poor performers. While performers saw a larger absolute volume of patients, on average, they provided approximately the same percentage of curative and preventive visits (see Table 7).

### d) Revenue per visit

Average revenue for preventive and curative visits was calculated the following way:

$$\begin{aligned} \text{Average revenue for preventive visits} &= 20 \\ \text{Average revenue for curative visits} &= \\ &[(\text{total income} - (\# \text{ preventive visits} * 20)) / (\# \text{ curative visits})] \end{aligned}$$

Average revenue for preventive visits is the same for all clinics: 20 shillings. Average revenue received for curative visits, however, differs widely among performers and poor performers. On average, performers earn 44% higher revenue per curative visit than poor performers. The average poor performer earned 44.41 per curative visit as compared to the average performer that earned 63.94 shillings per curative visit (see Table 8). Since revenue for curative visits is determined solely by the retail price of

drugs sold, this large difference is a puzzle. Understanding the reasons for these differences is an important area for study. Possible reasons include:

- Different morbidity patterns  
Poorly performing clinics may see more diseases that are treated with lower priced drugs.
- Different prescribing patterns  
Nurses in poorly performing clinics may have prescribing practices that result in fewer drugs dispensed.
- Different levels of poverty among population served  
Poorly performing clinics may operate in regions where the population has relatively less income. Lower income people may request a shorter course of drugs because they may not be able to afford the entire recommended dose.
- Leakage of drugs  
It is possible that nurses in poorly performing clinics are not accounting for all drugs that are sold to patients.

**e) Cost per visit**

Costs of preventive and curative visits were calculated the following way:

$$\text{Average total cost} = \text{total costs} / \# \text{ visits}$$

$$\text{Average fixed costs} = \text{total fixed costs} / \# \text{ visits}$$

Since there are no drugs dispensed with preventive visits, average fixed costs are equivalent to the average cost of a preventive visit.

$$\text{Average variable curative cost} = [(\text{total costs} - \text{total fixed costs}) / \# \text{ curative visits}]$$

$$\text{Average total curative cost} = \text{average fixed cost} + \text{average variable curative cost}$$

The first critical observation is that the cost of a preventive visit for both poor performers and performers is higher than the revenue received per visit (see Tables 8, 9). Among poor performers, the average preventive visit cost 41 shillings to provide, while revenue was 20 shillings. Among performers, the average preventive visit cost 25 shillings, while per visit revenue was 20 shillings.

These results have important implications for the future delivery of preventive care in financially independent clinics. An independent clinic that faces pressures to earn enough revenue to cover costs will be driven to provide services that enhance revenue. The danger is that independent clinics will emphasize curative care at the expense of preventive care.

Several factors may counterbalance the tendency for independent clinics to neglect preventive care. First, independent clinics are accountable to their Area Health Committee. A strong AHC that represents the interests of their community would be expected to monitor the volume of preventive visits to ensure that the community is

well served. Second, consumers that come to the clinic for preventive services may be more likely to return for curative services. The data do not tell us whether there is a relationship between the number of curative visits and the number of preventive visits or, whether preventive visits “generate” future curative visits. This complementarity in production is not represented in the data.

The average performer is earning a surplus on curative visits that more than compensates for the losses earned from preventive visits. This implies that, among performers, revenue from curative visits is cross-subsidizing preventive visits. In contrast, poor performers are losing on both preventive and curative visits as costs exceed average per visit revenue (see Tables 8,9).

#### **f) Market Size and Competition**

One factor that may contribute to the success of performers is that they are operating in communities with slightly larger populations than poor performers (see Table 10). In contrast, however, performers face slightly more competition from government clinics and slightly less competition from private clinics (see Table 10).

Government clinics are believed to attract the population when they have a supply of drugs, because the cost is negligible. When government clinics are out of drugs, it is perceived that the population seeks care from Chogoria clinics as well as private and other NGO competitors. The indicators of competition reported in Table 10 do not suggest a significant difference between the number of competitors faced by non-performers and performers. An additional measure that would be extremely valuable would be an indicator of the socio-economic status of the population. This information was not available.

#### **g) Facilitators’ perceptions of nurses and AHCs**

During visits to clinics, it became clear that the characteristic of the nurse running the clinic and the level of involvement of the Area Health Committee were important to the success of a community clinic. Facilitators were asked to rank nurses and AHCs with the following scale:

1=weak  
2=average  
3=strong

The results indicated in Table 11 suggest that nurses who run well performing clinics are perceived as stronger than nurses who run poorly performing clinics (2.9 vs. 2.27). Area Health Committees in communities with performers are perceived as slightly stronger than their poorly performing counterparts (2.33 vs. 1.94).

#### **h) Referrals**

The Community Health Department does not maintain records of the number of referrals from clinics to the hospital. During clinic visits, nurses were asked about the average number of monthly referrals and which facilities patients were being referred

to. Referrals averaged fewer than ten per month. Nurses recommended Chogoria Hospital if patients were able to afford the charges. They also recommended government hospitals to lower income patients.

### **j) Overall Assessment**

A number of explanations have been given for why some clinics lose and others earn surpluses. Reasons can be separated into areas that are under the potential influence of Chogoria hospital and clinics and reasons that are part of the environment that Chogoria functions in and are outside of its direct influence.

Factors outside the control of Chogoria include:

- Degree of poverty of population
- Behavior of competitors
- Pricing of competitors
- Range of services offered by competitors
- Quality of services offered by competitors

Chogoria can do little to influence the degree of poverty of the population in its catchment area. It also cannot influence the behavior of competitors. Interventions within Chogoria's control involve improving clinic operations and responding competitively to changing market conditions.

Factors that can be influenced by Chogoria interventions include:

- Interpersonal skills of clinic nurses and helpers
- Effectiveness of Area Health Committees
- Strategic pricing
- Quality of services
- Physical condition of clinics
- Clinic management
- Revenue growth
- Cost control

The following recommendations focus on factors that can be influenced by Chogoria interventions. They can be applied to both financially independent and dependent clinics to strengthen clinic performance and improve the outlook for sustainability.

## **V. RECOMMENDATIONS**

Chogoria Hospital has decided to make its clinics financially independent for a number of reasons. A prime motivation is that the hospital is facing financial difficulties and would like to reduce costs wherever possible. In addition, the clinics have proven to be challenging to supervise. There is also a belief that financially independent clinics may become more responsive to the preferences of their communities. On the other hand, the previous analysis indicates that there is a danger that financially independent clinics may provide fewer preventive care services. If

clinics close, there is a danger that the population will lose access to both preventive and curative services.

Chogoria has chosen five poor performers as the first clinics to be transformed. These clinics probably have the lowest probability of surviving. The advantage to Chogoria Hospital is that it will remove clinics that are a drain on financial resources. The disadvantage of this plan is that there is a danger it will create resentment among community members and fear among the other clinics. Negative community relationships may, in turn, result in fewer admission in Chogoria Hospital.

There are both advantages and disadvantages associated with the plan to transform clinics into financially independent entities. Much depends on how the process is implemented and, even with the best possible plan, it is likely that some clinics will flourish and others will fail. The following analysis identifies potential advantages and disadvantages of financial independence and recommends a series of interventions to help counteract potential negative outcomes.

Table 12 outlines potential positive and negative outcomes arising from the plan to transform clinics into financially independent entities. The positives and negatives from the perspective of the community are separately identified from the positives and negatives as seen by the hospital.

**Table 12: Potential Pluses and Minuses of Making Clinics Financially Independent**

	<b>Community</b>	<b>Hospital</b>
<b>Potential Positives</b>	1. improved responsiveness to consumer demands	1. reduced financial drain.  2. reduced supervisory burden.  3. improved perceived quality of clinics may improve patient perception of Chogoria Hospital  4. improved perceived quality may result in increased referrals to Chogoria Hospital.
<b>Potential Negatives</b>	1. reduced access to primary health care services.  2. potential loss of access to all care if clinics close.  3. increased financial and administrative burden on AHCs.  4. potential reduction in quality.	1. potential loss of community loyalty.  2. potential negative impact on referrals to Chogoria Hospital  3. reduced set of future potential health insurance arrangements  4. loss of influence and control over clinic services may compromise perception of Chogoria Hospital.

The following interventions are proposed in recommended order of priority.

***Recommendation #1: Improve the financial control and inventory management system***

The current system of financial control appears inadequate to control leakages of revenue from the system. The financial control system needs to be evaluated and a consistent process needs to be agreed upon. An improved financial control and inventory management system will benefit both independent and dependent clinics.

***Recommendation #2: Provide training to AHCs, Nurses, and Helpers***

New responsibilities associated with financial independence will require new skills in management, financial management, marketing, and strategic planning. Training in management skills will benefit both independent and dependent clinics. Area Health Committees will need to oversee operations of clinics. New skills required include human resource management, financial management, and inventory control. An effective clinic will learn to develop a strategic plan to increase market share by marketing to area schools and local businesses.

***Recommendation #3: Strengthen Supervision***

The effectiveness of the current system of supervision is not clear. Some problems in clinic financial accounts and record keeping were identified in the field visits which indicates that improved supervision would be desirable. The current system and its functioning, in practice, should be examined and evaluated. Evaluation of how facilitators divide their time between rural clinics and donor funded volunteer programs is also needed. One fear is that the volunteer programs are absorbing much of facilitators time, at the expense of supervision in the clinics, because of attractive financial benefits associated with donor funded programs. Results from this assessment should generate new protocols for supervisory visits and clarify the responsibilities of facilitators.

***Recommendation #4: Introduce quality improvement programs***

Chogoria's clinics are facing competition from private, government, and catholic clinics. People decide where to go for care based on cost and perceived quality, or "value for money".

One aspect of quality includes the physical condition of the clinic and some of Chogoria's clinics look run down. People may prefer a clean and brightly painted clinic with flowers in front and may view these physical attributes as indicators of quality. One idea is to run a contest for the most cosmetically improved clinic. Have the facilitators take "before and after" pictures and have the clinic nurses vote for the winner. Another idea is to insist on certain standards to maintain the Chogoria clinic license.

Clinics need to be open during the scheduled times and systems should be established to reduce waiting times.

The interpersonal skills of the nurse and helper are important indicators of the success of a clinic. Clinic staff need to communicate confidence and that they care about the welfare of the people in their community. One idea is to pair a nurse from a well functioning clinic with a nurse from a poorly functioning clinic. Establish a mentoring system where the poorly functioning nurse spends a week shadowing the more successful mentor. After the poorly functioning nurse returns to his/her clinic for a while and has time to practice new skills, have the mentor nurse spend some time in the poorly functioning clinic to give added support and to help upgrade skills. Introduce the program as an added support system- not a punishment.

Appropriate prescribing practices are also critical. Given the apparent variation in drugs prescribed per curative visit, a study of clinic prescribing practices is strongly recommended. After the results of the study, appropriate training programs can be developed.

Conduct consumer perception exit interviews to assess consumer satisfaction with clinic services. Develop a process to acknowledge popular clinics by granting awards of excellence.

***Recommendation #5: Pilot test options that alter incentives that will potentially alter behavior of clinic staff.***

Currently, there is no relationship between nurse or helper compensation and clinic performance. Nurses and helpers are paid a salary that is in no way tied to measures of productivity. Introducing a small bonus per client seen has the potential to alter the behavior of clinic staff. It is recommended to start with a small incentive per visit, because it is always much easier to increase than to decrease payment. To encourage preventive visits, the bonus may be a bit higher. It is not recommended to introduce bonuses that are a percentage of revenue because they might encourage excessive and inappropriate prescribing of drugs.

As discussed with Hospital Management, the program should be first introduced as a pilot in two clinics: one performer and one poor performer that is judged to be located in an area with the potential for success. The HAT is interested in implementing and evaluating this program. An evaluation plan needs to be established with baseline figures against which the success of the pilot can be evaluated. An implementation strategy is also needed that includes explaining the changed system to clinic staff and the AHC. Training in service planning and marketing would be needed to give the clinic staff some tools to respond to the new incentives. The current financial record keeping system should be easily adapted to this incentive based payment system.

In addition, because of concern about the possible reaction of hospital staff, the hospital management team should consider conducting focus groups with hospital staff to gauge their reaction.

***Recommendation #6: Change pricing for drugs and curative services***

Chogoria's retail drug price list was designed to cover the costs of preventive visits and to cross subsidize more expensive drugs with larger mark-ups on lower priced drugs. The population knows that it can purchase common drugs for lower prices elsewhere. It is recommended to introduce a change in the pricing for curative services to be a combination of a fixed price for the medical evaluation and a price for the drugs or injections received. Prices should be set strategically so that Chogoria clinics can compete and that enough revenue can be earned for the clinics to break even. Chogoria hospital management has agreed and is interested in introducing and evaluating a program or strategic pricing.

In the first stage, choose two areas to pilot test the change. One area should have a well performing clinic and the other a poorly performing clinic. Have the nurse and a representative of the AHC work with a facilitator to find out the prices being charged for drugs and services by competitors. A competitor should be defined as any service provider that a member of the community might consult when sick. Once this market analysis is completed, choose prices that will attract the population away from the competition, but do not choose prices that are too low to cover costs. Develop a new price list and a strategy for communicating the change to the community. Evaluate the response for three months. After three months, adjust the policy if needed. If deemed a success, repeat the process in other areas.

***Recommendation #7: Establish preventative and curative targets based on a service planning model***

It will be important to monitor the levels of curative and preventive visits delivered by clinics because of the danger that clinics may shift priorities away from preventive toward curative care. In addition, clinics will need to estimate the potential size of their market by estimating numbers of people in their catchment area with different characteristics (examples: children in need of immunizations, women of child bearing age). A methodology has been developed for planning the potential needs of a service area that looks at population information, historical utilization, and market characteristics such as number and behavior of competitors. Chogoria should consider establishing targets for preventive care as part of the licensing agreement with independent clinics.

***Recommendation #8: Devise a plan to monitor progress and flag problems***

In order to learn about what works and what does not work, it will be important to develop a plan to monitor progress and flag problems when they occur. Baseline data should be collected to ensure that there is a reference point to use to evaluate changes.

***Recommendation #9: Explore contracting arrangements for future insurance schemes***

The transformation of clinics to independent status implies that a staff model managed care insurance scheme will no longer be possible. It would be possible, however, to offer a managed care insurance product that covers preventive care, ambulatory curative care, and inpatient services by contracting a network of clinics. Boarding

schools are most likely to enroll into a comprehensive insurance scheme if the clinic located nearby is the point of entry. Members of Coffee Cooperatives are also most likely to enroll in a comprehensive insurance scheme if nearby clinics that carry the Chogoria license are of good quality. Clinics are also likely to be an important part of the marketing process. Contracting arrangements between future insurance schemes and clinics will need to incorporate adequate incentives for clinics to actively attract local population groups. Payment can be by capitation with bonuses and/or withholds to ensure that target population groups are served and that the appropriate mix of preventive and curative services are provided.

***Recommendation #10: Transform poor performing clinics that are redundant. Of clinics that should survive, transform the strong performing clinics first***

Chogoria's HAT has identified a group of poor performing clinics that are located in communities where the population has access to adequate quality care from other providers. These redundant clinics are a drain on hospital resources which cannot be justified because they are serving unmet needs among the population. It is recommended to transform these clinics to independent status.

Of the group of clinics that are serving critical needs among the population, the recommendation is to transform the strongest performers first. The program has a higher chance of attaining its ultimate goals if clinics with strong nurses and Area Health Committees and a good financial picture are the first to be transformed. These pioneers can then be used to teach other clinics and Area Health Committees.

**Additional Recommendations:**

It would be worthwhile to compare the relative costs and effectiveness of delivering preventive and family planning services by rural clinics versus community based distributors to help determine priorities.

A survey of population health seeking behavior and ability and willingness to pay is planned with the aim of understanding the potential market for prepaid insurance products. Questions should also be designed to understand the pricing patterns of clinic competitors and the determinants of where the population goes for both preventive and curative ambulatory care. This information should contribute to the service planning model and to developing strategic pricing and service offerings in clinics.

## **VII. MODEL OF CLINIC OBJECTIVE FUNCTION AND SIMULATION**

What follows is a model that can be used by clinic managers to examine the potential effects of various scenarios on the financial equilibrium of clinics. The following "what if" scenarios could be considered with this model:

1. What would happen to net revenues if the poor performers earned the same revenue per curative visit as the performers?

2. What would happen to net revenues if the pricing for curative services was changed to a fixed price for the consultation plus a variable price (lower than the current retail price) for drugs? Different combinations can be tried.

(Note: You must make an assumption about the “demand response” to the change in price- How many more people will come to the clinic with this change? Alter quantities to reflect your assumptions)

3. What would happen to net revenues if the charges for preventive services were increased? Different combinations can be tried.

(Note: You must make an assumption about the “demand response” to the change in price- Will fewer people will come to the clinic with this change? Alter quantities to reflect your assumptions)

4. What would happen to net revenues if costs were reduced/increased? Different combinations can be tried.

5. What would happen to net revenues if the compensation of clinic nurses was changed to a combination of salary plus bonus for each patient visit?

(Note: you must make an assumption about how effective the new compensation scheme will be at causing the nurse to change behavior so that more patients come).

6. What would happen to net revenues if x% of the sub-population served by a clinic went to the clinic once per year for a curative visit? This type of simulation could be effectively used with information from a service planning model that estimated potential demand by different population groups.

7. What would happen to net revenues if x% of the sub-population served by a clinic entered a prepaid insurance scheme and the clinic received a fixed annual capitation per enrolled person? This type of simulation could be effectively used with information from a service planning model that estimated potential demand by different population groups.

### **Simulation 1: What would happen to net revenues if the poor performers earned the same revenue per curative visit as the performers?**

This question is extremely relevant because one of the key reasons poor performers are not covering costs is that they earn much less than performers for each curative visit. To conduct this simulation, the average revenue per curative visit for performers was substituted for the actual average revenue received by each poor performer. In addition, the average cost per curative visit incurred by performers was substituted for the actual average curative cost incurred by poor performers. Quantities of curative and preventive visits were kept constant.

The result is extremely powerful. Of the eighteen poor performers, fully half (nine out of eighteen) would earn a surplus if prescribing practices were adjusted to those of the average performer. This intervention changes the entire community clinic system from being a financial drain on PCEA Chogoria to being an income generator. If poor performers would change prescribing practices to those of the average good performer, the community clinics would have generated a net gain of 4,188,445 shillings in 1997.

Table 13 demonstrates these results.

**Table 13: Scenario 1**

	<b>Sim. 1</b>	<b>Sim 1</b>	<b>Sim 1</b>	<b>Actual Net Revenue</b>
	<b>Total Revenue</b>	<b>Total Cost</b>	<b>Net Revenue</b>	
<b>Clinic</b>				
Kiamuriuki	86796.36	168597.02	-81800.66	-119397.51
Nyagani	137079.36	207805.52	-70726.16	-135605.31
Kajiampau	133871.78	165393.71	-31521.93	-68149.983
Kiang'onde	151905.66	198968.37	-47062.71	-99007.47
Kieni	134577.66	191382.37	-56804.71	-85772.59
Kaare	204870.02	234171.39	-29301.37	-89801.19
Karimba	186118.18	219368.51	-33250.33	-83027.44
<b>Weru</b>	<b>209387.8</b>	<b>197482.1</b>	<b>11905.7</b>	<b>-75434.6</b>
Nkacii	169640.84	179888.38	-10247.54	-53368.42
Kambandi	180806.24	194393.68	-13587.44	-63581.835
<b>Murambani</b>	<b>225600.2</b>	<b>199043.9</b>	<b>26556.3</b>	<b>-40537.87</b>
<b>Ngeru</b>	<b>323409.06</b>	<b>270614.67</b>	<b>52794.39</b>	<b>-50844.475</b>
<b>Kaanwa</b>	<b>359674.36</b>	<b>342448.02</b>	<b>17226.34</b>	<b>-60194.38</b>
<b>Itugururu</b>	<b>260746.52</b>	<b>233323.14</b>	<b>27423.38</b>	<b>-34178.145</b>
<b>Kirogine</b>	<b>267200.88</b>	<b>249021.16</b>	<b>18179.72</b>	<b>-40145.185</b>
<b>Minugu</b>	<b>249727.78</b>	<b>205355.71</b>	<b>44372.07</b>	<b>-22507.26</b>
<b>Makandune</b>	<b>268023.48</b>	<b>216541.86</b>	<b>51481.62</b>	<b>-14903.894</b>
<b>Mukuuni</b>	<b>356937.9</b>	<b>267339.05</b>	<b>89598.85</b>	<b>-144.9</b>

### **Algebraic Model:**

Because clinics are not profit maximizers, we will assume that the objective function of clinics is to break even. Clinics face fixed costs (salaries, training) that must be covered. In addition, curative visits incur the additional variable costs of drugs and supplies. Different combinations of preventive and curative visits can enable a clinic to earn enough revenue so that fixed and variable costs are covered and they can break even. The following formulation will enable a clinic to understand how to be sure it remains in a financial equilibrium.

Let:

Pp= price of preventive visit

Pc= price of curative visit

Qp= quantity of preventive visits

Qc= quantity of curative visits

S= sum of compensation and benefits for clinic personnel

T= training costs

CD= cost of drugs

CM= cost of medical supplies

MU= maintenance and utilities

\*\*\* Note; we have no information on MU so we will assume it is zero. A financially independent clinic will have to consider maintenance costs and utilities as well.

$P_p \cdot Q_p$  = preventive revenue

$P_c \cdot Q_c$  = curative revenue

$(S+T) / (Q_p+Q_c)$  = average fixed costs

$(CD+CM) / (Q_c)$  = average variable curative costs

Total Revenue =  $(Q_p \cdot P_p) + (Q_c \cdot P_c)$

and

Total Costs =  $S+T+CD+CM+MU$

or

Total Costs =  $[(S+T) / (Q_p+Q_c)] \cdot (Q_p+Q_c) + [((CD+CM) / (Q_c)) \cdot Q_c] + MU$

**Clinic Objective Function or “Break Even Condition” is:**

Total Revenue = Total Costs

or

$(Q_p \cdot P_p) + (Q_c \cdot P_c) = S+T+CD+CM+MU$

or

Eqn. 1:  $(Q_p \cdot P_p) + (Q_c \cdot P_c) = [(S+T) / (Q_p+Q_c)] \cdot (Q_p+Q_c) + [((CD+CM) / (Q_c)) \cdot Q_c] + MU$

Scenario 1: What would be the financial picture of poor performers if they earn the same average revenue per curative visit as performers and incur the same variable costs as performers?

Assume:  $P_p = 20$

$P_c = 63.94$

(average curative revenue for performers from Table 8)

$[((CD+CM) / (Q_c)) = 18.83$

(average variable curative cost for performers from Table 9)

Simulations can easily be tried using a spread sheet program such as excel and the data that are currently collected by the Community Health Department.

## KEY PERSONS CONTACTED

### USAID

Ms. Milly Howard  
Ms. Dana Vogel

### Chogoria Hospital

Dr. Gordon A. McFarlane, Director and Medical Officer in Charge  
Mr. Festus Nkonge, Administrative Director  
Mr. Kiara Bundi, Computer Manager  
Mrs. Joyce Mutua, Deputy Director of CHD  
Mr. Eliphas Mutegi, Rural Health Unit Facilitator  
Mrs. Ida Mutegi, Rural Health Unit Facilitator  
Mrs. Charity Mutegi, Rural Health Unit Facilitator  
Dr. Angus Grant  
Dr. Elizabeth Grant

### Chogoria Clinics

Staff of the following clinics:  
Nyagani  
Kiamaruki  
Kiriani  
Kathera  
Gangara

### APHIA Financing and Sustainability Project

Mr. Ian Sliney, Chief of Party  
Mr. Rudolph Chandler,  
Mr. Jay Clark  
Mr. Silas Njeru  
Mr. Steven Mussau

### Management Sciences for Health

Mr. Charles Stover, Principal Associate  
Dr. Dayl Donaldson, Senior Associate  
Dr. Mary O'Neil, Training Consultant

## VI. WORK ACTIVITIES, DATES AND PLACES OF TRAVEL:

April 26,27: Travel from Washington D.C. to Nairobi, Kenya

April 28: Meet with AFS Staff to review plans and objectives.

April 29, April 30: Travel to Chogoria with Charles Stover and Rudolph Chandler. Met with senior Chogoria management, Dr. Gordon McFarlane and Mr. Festus Nkonge to review objectives and to establish priorities. Met with Mrs. Joyce Mutua, Deputy Director of the Community Health Department, to develop plan for the following week to visit representative top performing and poor performing clinics. Met with Mr. Kiara Bundi, Computer Manager, to understand available data and to begin data analysis.

May 1: Met with AFS Staff to develop plan of action for following week and continued data analysis.

May 4: Met with members of the AFS team, MSH consultants and staff, and MOH representatives to discuss technical work at Nandi Hills. Continued data analysis and planning.

May 5: Traveled to Chogoria. Continued data analysis with Kiara Bundi with the goal of transferring analytical skills

May 6,7: Visited five rural clinics, two poor performers and three good performers. Visited one competing catholic clinic and one competing government health center to assess the competition. Was accompanied by Joyce Mutua, Kiara Bundi and either Elephas Mutegi or Ida Mutegi. Met with Elizabeth Grant to discuss process to apply for USAID endowment funding and research and survey work. Briefed Dr. Gordon McFarlane.

May 8 : Briefed Mr. Festus Nkonge. Returned to Nairobi.

May 9: Continued data analysis and began report writing.

May 11: Completed first draft of report.

May 12: Briefing with hospital costing team before their trip to Chogoria. Briefing with Charles Stover, Jay Clark, Silas Njeru, and Ian Sliney to discuss next steps. Work on simulation models.

May 13: Revise report with comments received. Develop draft technical assistance plan. Incorporate simulations and complete executive summary. Brief USAID Mission.

May 14: Final edits, submit final report. Travel to Washington D.C.